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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/892,076 | 06/26/2001 | Mitsugu Hanabusa | 1232-4729 | 2219 |
| 27123 | 7590 | 10/31/2006 | | |
| MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101 | | | EXAMINER ROSARIO, DENNIS | |
| | | | ART UNIT 2624 | PAPER NUMBER |

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 09/892,076 | Applicant(s) HANABUSA, MITSUGU | |
| | Examiner Dennis Rosario | Art Unit 2624 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE 8/14/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12, 15-19 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12, 15-19 and 22-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment was received on 8/14/2006. Claims 12,15-19 and 22-25 are pending.

Drawings

2. Due to the amendment, the objection to the drawings of figures 4 and 14-21 are withdrawn.

Specification

3. Due to the amendment, the objection to the specification is withdrawn.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: CCD Array. Note that currently as amended the title is CDD Array.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The examiner has reviewed the cited pages 16 and 23 and still does not understand how claim 25 is overcome in light of the pages.

Does the applicant mean:

The apparatus according to claim 16, wherein, in the second transferring mode, said pulse supply unit **performs a first operation that (emphasis added)** continuously outputs signals from the first element array?

Currently the claimed pulse supply unit as shown in applicants' fig. 15,num. 209 that continuously outputs signals to numerals 106,201,202,205 and 207. However the portion of "from the first element array" does not make physical sense, because the claimed first element array corresponding to fig. 15,num. 106 outputs signals to fig. 15,num. 202 and not to fig. 15,num. 209.

In order for claim 25 to be supported as claimed the output of fig. 15,num. 106 would be an input signal for fig. 15,num. 209.

Response to Arguments

6. Applicant's arguments, see amendment, page 11, filed 8/14/2006, with respect to the rejection(s) of claim(s) 12,15-19 and 22-25 under 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Seachman (US Patent 4,281,254 A1) in view of Sayag (US Patent 5,585,847 A1).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 12,15,16,17,22,24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seachman (US Patent 4,281,254 A1) in view of Sayag (US Patent 5,585,847 A1).

Regarding claim 12, Seachman teaches an image processing apparatus comprising:

a) a first element array (or "one array" in col. 5, lines 66,67) having a plurality of photoelectric conversion elements arranged in a line;

b) a second element array (or "second array" in col. 5, line 68) shifted from said first element array by a predetermined distance ("offset" in col. 5, line 67) in a main scanning direction and having a plurality of photoelectric conversion elements arranged in a line;

c) a first shift register (fig. 3,num. 36) for serially transferring signals from said first element array in response to transfer pulses ("three phase" in col. 4, line 24) ;

d) a second shift register (fig. 3,num. 36 corresponding to the second array) for serially transferring signals from said second element array in response to the transfer pulses;

e) a pulse supply unit (or a signal line originating from fig. 1, CLOCK & TIMING LOGIC) for supplying at least three types of the transfer pulses having different phases to said first shift register and supplying at least three types of the transfer pulses having different pulses to said second shift register; and

f) a driving circuit (fig. 1, CLOCK & TIMING LOGIC) for inputting said at least three types of the transfer pulses having different phases to said pulse supply unit.

Seachman does not disclose the last limitation of claim 12, but does teach that the invention can use three and four phases in col. 4, line 24. However, Seachman does not provide any details about using three and four phases. Thus, Seachman suggests to one of ordinary skill in the art to find a teaching about three and four phases to practice the invention using three and four phases.

Sayag teaches a three phase system as shown in the lower right of fig. 7 and the remaining limitation of:

g) wherein said first and second shift registers (one of which is shown in fig. 7,num. 174) add up two signals (as shown in fig. 8E relative to fig. 8D) outputted from two adjacent elements during serially transferring the signals in response to the at least three types of transfer pulses (as shown in the lower right of fig. 7) having different phases (or are "inde-pendent" in col. 5, lines 14,15).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Seachman's teaching of using a three phases with Sayag's teaching of three phases, because Sayag's teaching provides "very high resolution color images...and [a] rapid...color illumination scheme (col. 3, lines 8-11)."

Regarding claim 15, Seachman of the combination teaches the apparatus according to claim 12, wherein said pulse supply unit can supply two pulses (as shown in fig. 4 as Φ_1 and Φ_2) having different phases to said first and second shift registers so as to output signals from said first and second element arrays without addition (as shown in fig. 5).

Regarding claim 16, Sayag of the combination teaches the apparatus according to claim 12, wherein said pulse supply unit supplies (fig. 6,num. 66), in a first transferring mode (as shown in fig. 8E), said at least three types of the transfer pulses having different phases to said first and second shift registers to perform control to add signals from adjacent elements (as shown in ifg. 8E relative to fig. 8D), and, in a second transferring mode (as shown in fig. 8L), two types of the transfer pulses having different phases to said first and second shift registers so as to output signals from said first and second pixel arrays without addition (as indicated in fig. 8R by the first and 5th wells from the left that correspond to a red exposure signal).

Regarding claim 17, Sayag of the combination teaches:

- a) a light source (fig. 6,num. 62) for irradiating an original with light; and
- b) imaging means (fig. 6,num. 65) for forming light reflected by the original into an image on said first and second element arrays (fig. 6, num. 64).

Claim 22 is rejected the same as claim 12. Thus, argument similar to that presented above for claim 12 is equally applicable to claim 22.

Regarding claim 24, Sayag of the combination teaches the apparatus according to claim 16, wherein, in the second transferring mode, said pulse supply unit alternately repeats (as shown in figures 8B,8C and 8D that operates on an odd phase, even phase and back to odd phase information, respectively) a first operation of continuously outputting signals (upon the output of fig. 6,num. 66) from the first element array, and a second operation of continuously outputting signals (upon the output of fig. 6,num. 66) from the second element array.

Claim 25 is rejected the same as claim 24. Thus, argument similar to that presented above for claim 24 is equally applicable to claim 25.

9. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seachman (US Patent 4,281,254 A1) in view of Sayag (US Patent 5,585,847 A1) as applied to claim 17 above, and further in view of Saito et al. (US Patent 6,256,063 B1).

Regarding claim 18, the combination does not teach claim 18. However, Sayag of the combination teaches that a "digital... cameras" in col. 9, line 40 can be used and "designed" in col. 9, line 29 in accordance with the invention. Thus, Sayag suggests to one of ordinary skill in the art to find a teaching of a digital camera that can be used with the invention.

Saito et al. teaches a camera in fig. 2, num. 10 and the remaining limitation of claim 18 of:

- a) analog gain control means (fig. 13, num. 324) for controlling an analog gain of a signal output from said first and second element arrays (fig. 13, num. 322); and
- b) an analog/digital converter (within fig. 13, num. 324) for digitizing the signal controlled by said analog gain control means.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Sayag's teaching of the digital camera with Saito et al.'s teaching of a digital camera, because Saito et al.'s teaching fig. 13, num. 324 is an integrated circuit relative to a separate circuits as shown in fig. 5, num. 114, 115 and 133 that perform the same operations of fig. 13, num. 324 thus saving space inside the camera.

Regarding claim 19, Saito et al. of the combination teaches the apparatus according to claim 18, further comprising:

a) shading correction means (or "gamma correction circuit" in col. 14, line 29) for performing shading correction for the digitized signal.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seachman (US Patent 4,281,254 A1) in view of Sayag (US Patent 5,585,847 A1) as applied to claim 16 above, and further in view of Hashimoto (US Patent 4,910,599 A1).

Regarding claim 23, the combination does not teach claim 23, but Sayag of the combination teaches "other modes" in col. 5, lines 16,17 can be performed.

Hashimoto teaches a plurality of modes as shown in fig. 3 and claim 23 of

a) at least one type of the transfer pulses supplied by said pulse supply unit in the first transferring mode (or ORDINARY READING MODE as shown in fig. 3) has a frequency which is twice as high (at frequency " f_s " in col. 5, line 9) as that of the transfer pulses supplied in the second transferring mode (or ZOOM READING MODE as shown in fig. 3 since the zoom reading mode operates at a frequency of " $f_s/2$ " in col. 5, line 54).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Syang's teaching of other modes with Hashimoto's teaching of fig. 3, because Hashimoto's teaching suppresses "noises" in col. 1, line 55 while in the zoom reading mode.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Weinberg (US Patent 3,656,011 A1) is pertinent as teaching a three phase register as shown in fig. 2 and adding signals as shown in fig. 3, LINE 3. This reference is applicable to claims 12 and 22.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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